

EXHIBIT 1



United States Public Health Service

Region VIII

1961 Stout Street, Room 49B
Denver, Colorado 80294-3538

August 1, 2000

Dr. Linda Rosenstock, Director
National Institute for Occupational
Safety & Health
Hubert H. Humphrey Building Room 715H
200 Independence Ave., S.W.
Washington, DC 20201

Dear Dr. Rosenstock,

I would like to bring to your attention a significant occupational and public health concern regarding the widespread dissemination of amphibole (actinolite-tremolite series) asbestos in Libby, Montana, and potentially in vermiculite end-products used throughout the country. As you may be aware, NIOSH researchers evaluated vermiculite miners, that were exposed to asbestos, in Libby, Montana in the early 1980's. NIOSH investigators found significantly elevated risks of asbestos-related malignant and non-malignant respiratory disease among these workers. Concurrently, Dr. Jim Lockey at the University of Cincinnati identified elevated pulmonary disease among workers with much lower asbestos exposures at a facility processing Libby vermiculite in Ohio. These articles have been included for your information.

In November 1999, Libby became the focus of national attention when it was reported that a number of residents that did not work at the vermiculite mine or processing facilities were suffering from asbestos-related diseases. Subsequently, researchers from the Environmental Protection Agency (EPA), Public Health Service (PHS) Region 8, and Agency for Toxic Substances and Disease Registry (ATSDR) began intensive environmental and public health investigations of the site. Medical screening (e.g., chest x-rays, pulmonary function testing, questionnaires) is currently being conducted on 4200 former workers, family contacts, and others potentially at risk. NIOSH researchers (Dr. Robert Castellon, Dr. Leslie Stayner, Dr. Pat Sullivan, Dr. Vince Castranova, Mr. Ken Wallingford, and Mr. Ralph Zumwalde) have also been providing intermittent technical assistance to these efforts.

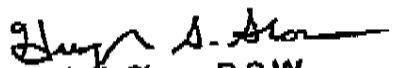
One issue that has very recently come to our attention, is that end-product vermiculite insulation, and most likely other end-products, apparently contained appreciable quantities of asbestos, but were marketed, sold, and used throughout the country without adequate labeling or warnings and were commonly considered to be non-toxic (see enclosed information and video tape). Internal company documentation and recent testing of residential insulation materials, reportedly used in over one million homes, reveals that even minimal handling by workers or residents poses a substantial health risk (airborne exposures up to 150 times the current occupational standards (0.1 f/cc)).

Recent discussions between the aforementioned federal partners working at the Libby site identified the pressing need for increased NIOSH participation and response to occupational health issues of concern.

Exemption (b)(5)

If I can be of any further assistance to you in this matter please contact me at (303) 844-7860 or Dr. Aubrey Miller at (303) 844-7857.

Sincerely,


Hugh S. Sloan, D.S.W.
Assistant Surgeon General
Regional Health Administrator

Enclosures

07/10/2002 01:11

EXHIBIT 2



U.S. Environmental Protection Agency

Asbestos

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General Information

Asbestos in Your Home

Asbestos Ban and Phase Out

Vermiculite

EPA Regional and State Contacts

Information Resources

Laws and Regulations

NDAAC Directory

Asbestos in Vermiculite Insulation

The U.S. Environmental Protection Agency (EPA) offices have received a large number of phone calls from citizens concerned about vermiculite insulation in their home that might be contaminated with asbestos. EPA is gathering more information about vermiculite insulation and other products containing vermiculite. If you suspect vermiculite insulation is in your home, the safest thing is to leave the material alone. If you decide to remove or must otherwise disturb the material due to a renovation project, consult with an experienced asbestos contractor. The following information provides a common-sense approach to help you find out what kind of insulation is in your home and decide what to do if you have vermiculite insulation.

Background

Why is it a problem?

What does it look like?

What should I do if I have vermiculite insulation?

How do I find an accredited asbestos removal professional?

Where can I get more information?

Background

Product names cannot be used to determine if your insulation might contain asbestos. All vermiculite is likely to contain small or trace amounts of asbestos. EPA believes that a number of manufacturers produced insulation from vermiculite. One mine in the United States produced over 70 percent of the world's vermiculite before the mine was closed in 1990. Vermiculite products generated from this mine were likely to have been contaminated with asbestos.

Why is it a problem?

If disturbed, asbestos fibers in vermiculite insulation may get into the air. These fibers can be inhaled and become trapped in the lungs where they may cause diseases such as asbestosis, lung cancer, and mesothelioma. These diseases can develop many years after exposure to asbestos.

What does it look like?

Vermiculite is a mineral that is shaped like a small nugget, and varies in color from silver-gold to gray-brown. The asbestos fibers contained in vermiculite insulation are generally too small to be seen without magnification. Only a trained technician using careful microscopic examination can see asbestos fibers.



Click on the image to see an enlarged picture of vermiculite.

What should I do if I have vermiculite insulation in my home ?

Look at the insulation without disturbing it. If it appears you have vermiculite insulation in your home, we recommend the following steps:

- If possible, leave the insulation undisturbed. Asbestos particles will not become airborne if the insulation is contained. If it's sealed behind wallboards and floorboards or is isolated in an attic that is vented outside, the best approach is to keep it in place.
- If you are planning to remodel or replace vermiculite insulation, have it tested first.
 - EPA recommends using a trained and accredited professional to conduct the tests. If you decide to remove the vermiculite home insulation, use accredited, licensed asbestos removal professionals. Use of a "negative pressure enclosure" technique will prevent asbestos fibers and dust from escaping from the attic into the rest of the home. **Do not attempt to do this yourself.** You could spread asbestos fibers throughout your home, putting you and your family at risk of inhaling asbestos fibers.
 - After the vermiculite insulation is removed, you may want to consider having air monitoring tests done in your attic and throughout the living areas of your home. This is to ensure that the concentration of asbestos fibers in the home is low or not present.

How do I find an accredited asbestos removal professional?

An accredited asbestos inspector has undergone approved training and then taken examinations to be accredited. He or she will be able to take samples of the insulation, provide information on the results, and advise about additional tests or options to consider. Inspectors can be found in the Yellow Pages under "Asbestos Consulting and Testing" or "Asbestos Abatement." Ask the inspector to provide the name of the company that trained, accredited him or her. Call that company to confirm whether a particular inspector has had the required training and has up-to-date accreditation. If your State has licensing, confirm that the inspector's license is also current. Companies that can test the air in your home will be found under the same listings.

Where can I get more information?

Information can be found on the hotline and web sites below as it becomes

- EPA/OPPT/Asbestos - Vermiculite Insulation

available.

For current information on asbestos and health related information, contact EPA's TSCA Hotline at 1-202-554-1404 or visit EPA headquarters' Asbestos web site: www.epa.gov/asbestos

Also visit the federal Agency for Toxic Substances and Disease Registry (ATSDR) website at www.atsdr.cdc.gov. [\[ATSDR disclaimer\]](#)

[EPA Home](#) | [Privacy and Security Notice](#) | [Contact Us](#)

Last updated on Thursday, June 20th, 2002
URL: <http://www.epa.gov/asbestos/insulation.html>

EXHIBIT 3

CAMBRIDGE

CONFIDENTIAL

XU APR 26 1977

TO: E. S. Wood

DATE:

April 19, 1977

FROM: Julie C. Yang

SUBJECT:

Tremolite Content
in ZONOLITE® Products

CC: E. C. Daecker
 E. A. Eschenbach
 F. W. Eaton
 W. R. Hanlon
 R. M. Vining
 B. R. Williams
 J. W. Wolter

C. C. Ou
 S. C. Vaughan
 File: 71-046

OBJECTIVE:

The objective of this study is to determine the tremolite content in all ZONOLITE products made of both Libby and Kearney vermiculites. In a few cases, repetitions analyses were made for product used on job-sites, so that correlation can be made with the fiber counting results.

METHOD

When tremolite is determined from the product as received, in most products tremolite was not found by conventional analytical methods. The trace amount can be determined only when intensive concentration techniques are employed. Tremolite determinations are then made from the fractions by quantitative x-ray diffraction analysis and with the aid of petrographic microscopic examination.

1. Terra-Lite Vermiculites, Varpite, Radi-Earths and Metro-Mixes

The schematic method of analysis and the results have been reported in T&A 50110 with limited distribution. They are also reported here as shown in schemes 1, 2, and 3.

2. Scott Turf Builder

The method of concentration was very similar to that of Terra-Lite Vermiculite scheme #1, except in the water flotation step. A longer soaking period was needed to solubilize all the nutrients present, which was approximately 50% of the total weight.

3. ZIC, Attic Fill, Masonry Fill

Same concentration method as Terra-Lite (scheme #1).

EXHIBIT

4

Emergency Notice

To: E.S.Wood
 From: J.C.Yang
 April 19, 1977

Tremolite Content
 in ZONOLITE® Products
 Page 2

4. MONOKOTE

Analysis of tremolite in MONOKOTE was the most difficult and time-consuming procedure. The glass fibers were screened off, plaster of Paris was dissolved in water about 50-100 times the weight, expanded vermiculite was floated off, and all the washings were combined, filtered and dried. The filter paper and the organic matter were then burnt off; the remaining residue was x-rayed for the tremolite analysis. Detailed separation and concentration procedure is shown in scheme #4.

5. ZONOLITE 3300

Separation and concentration techniques are similar to that of MONOKOTE, but dilute acid (in HCl) was used to digest the portland cement binder instead of using large excess of water for solubilizing plaster of Paris. The procedure is shown in scheme #5.

RESULTS

A. Tremolite Content in ZONOLITE Products

Kearney

ID No.	Product Description	% Tremolite
1	ZIC K-4 Kearney	5.466
2	ZIC K-4/5 B	1.715
4	Masonry Fill K-4	1.605
9	Masonry Fill K-3	.0504
11	MX-4 Kearney 3	<0.08
13	MX-5 Kearney 3	<0.08
17	Terra-Lite Kearney	4.319
18	Terra-Lite T.R.	0.016
20	Metro Mix 200 T.R.	(as rec'd) 0.398 (dried)* .477
21	Redi-Earth T.R.	(as rec'd) 0.048 (dried) .071
23 (5)	Verxite Carrier Grade #4, Kearney (St. Louis)	0.083 (<0.008)
26	Metro-Mix 300, T.R.	(as rec'd) 0.081 (dried) 0.121
27	Metro-Mix 350, T.R.	(as rec'd) 0.156 (dried) 0.259

* Metro-Mixes and Redi-Earths were computed both in as-received basis and oven-dried basis since the product has substantial amount of moisture.

E. S. Wood
 m: J. C. Yang
 11 20, 1977

Tremolite Content
 in ZONOLITE® Products
 Page 3

by No.	Product Description	% Tremolite	
		< 0.10	0.01
0	MX-4 (L-3) West Chicago		
6	Masonry Fill (L4D-18) West Chicago	0.035	
9	Terra-Lite, W. Chicago	.013	
15	Attic Fill (L-2) W. Chicago	(as rec'd) .031	(dried) .051
28	Redi-Earth (L) Santa Ana	< 0.02	
14	Redi-Earth (L) W. Chicago	(as rec'd) 0.034	(dried) < 0.043
15	Metro-Mix 200 (L) W. Chicago	< 0.007	
12	Zonolite 3300 (L-3) W. Chicago	0.344	
3	Concrete Aggregate (L4D-18) W. Chicago	< 0.009	
16	Scott Turf Builder (L) Dark	< 0.009	
22	Scott Turf Builder (L) Light		

B. Tremolite Content in Zonolite Job-site Samples

ID No.	Product Description	Location	% Tremolite
8	ZK Roof Deck (K 4/5 B)	Montgomery, Ala.	2.828
9	Masonry Fill (K-3)	Columbus, Ohio	0.050
28	Redi-Earth (L-4)	Forest Service, Santa Ana	0.031 (.051)*
51	Monokote-5 (L-3)	San Diego	< 0.106
54	Masonry Fill (K-4)	W. Palm Beach, Fla.	2.86
55	ZIC (K-4)	Edison H.S., Miami, Fla.	0.476
58	Masonry Fill (L-3)	Mashburn & Goe Bldg., Oklahoma	0.250
57	Monokote-4 (L-3)	Hyatt Regency, Dallas	0.240

*oven-dried basis

DISCUSSION and COMMENTS

1. Some of the Kearney products showed high "tremolite" content since x-ray diffraction method cannot distinguish massive tremolite (Horablende?) and fibrous tremolite. Microscopically, most of the Kearney material showed trace or absence of fibers.
2. Tremolite fibers can be reduced if a screened vermiculite is used such as in verxite. We have observed that most of the fibers are concentrated in the fines.

07/10/2002 04:40 PM
To: E. S. Wood
From: J. C. Yang
April 20, 1977

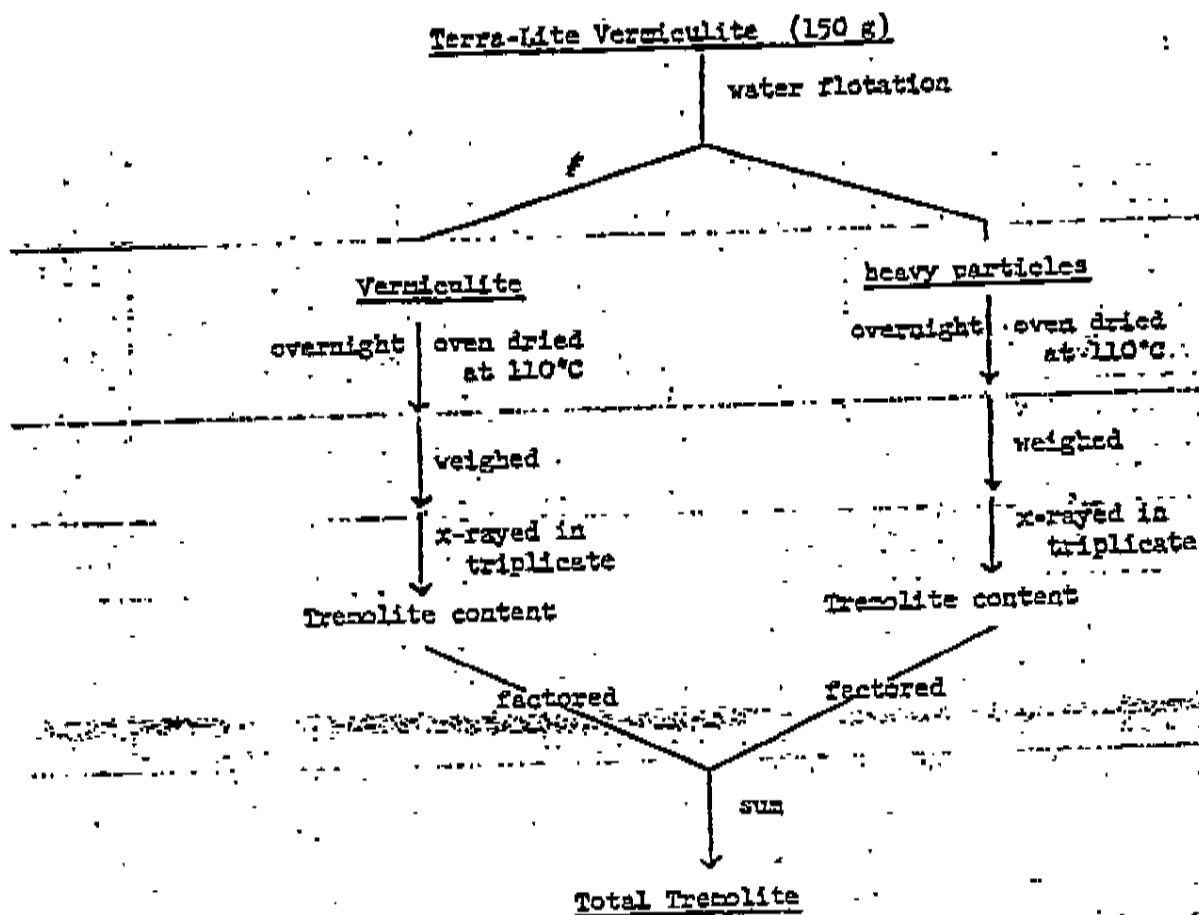
Tremolite Content
in ZONOLITE® Products
Page 4

3. The percentage of tremolite in several samples was expressed in less than a certain value which indicated that tremolite fiber was not detected by our x-ray method. The limit of detection for tremolite by x-ray diffraction technique is about 0.2%. When concentration factors were taken into consideration, the possible maximum tremolite content in each sample was indicated in the analyses.
4. Most of the Monokote showed undetectable tremolite content except #51, an MK-4 product used at Hyatt Regency in Dallas, which showed a 0.2% tremolite; the value has been double checked and is real.

Julie C. Yang
Julie C. Yang

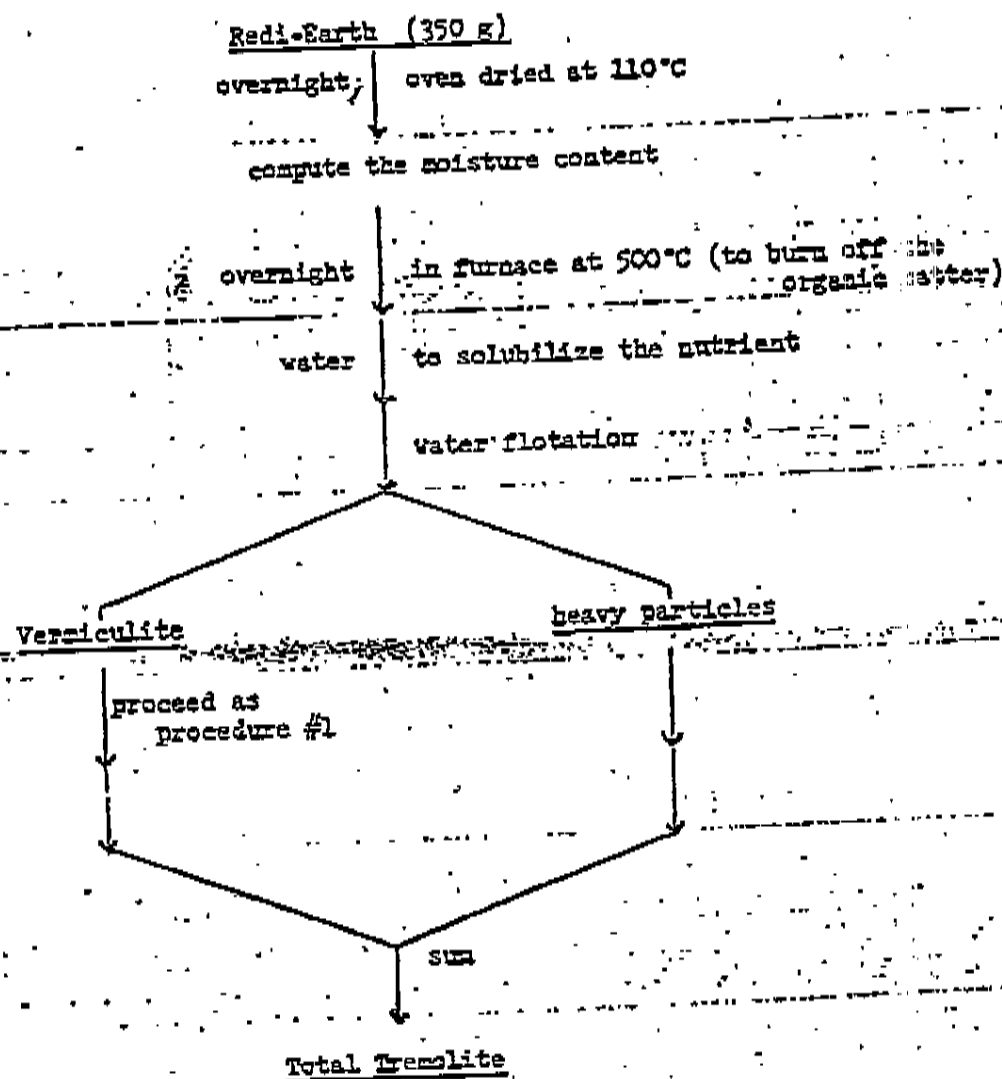
JCF:mlr

1. SCHEMATIC DIAGRAMS FOR TRENDOLITE ANALYSIS

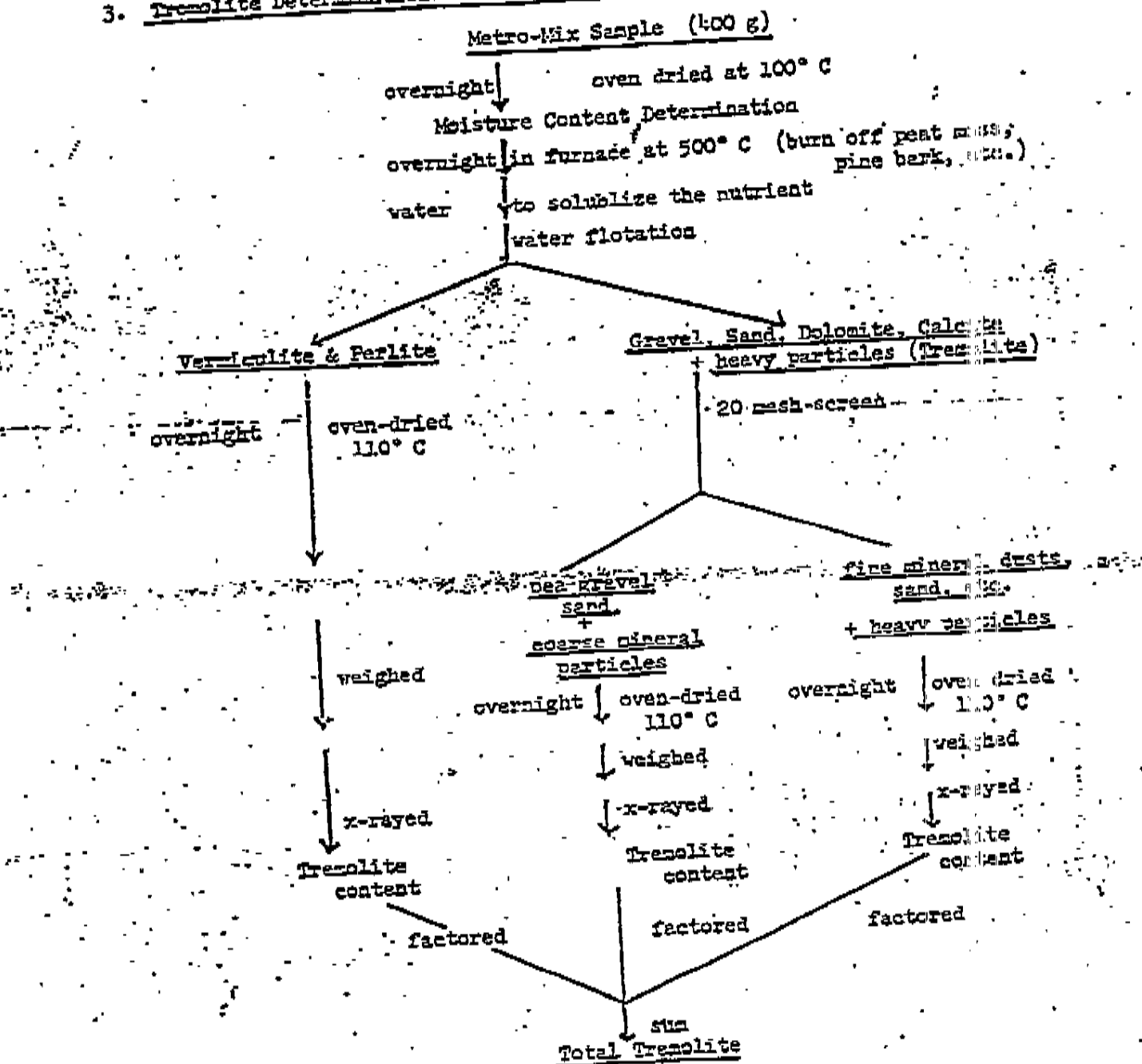
1. Trendolite Determinations in Terra-Lite Vermiculite

Julie C. Yang
April 19, 1977

2. Tremolite Determination in Redi-Earth

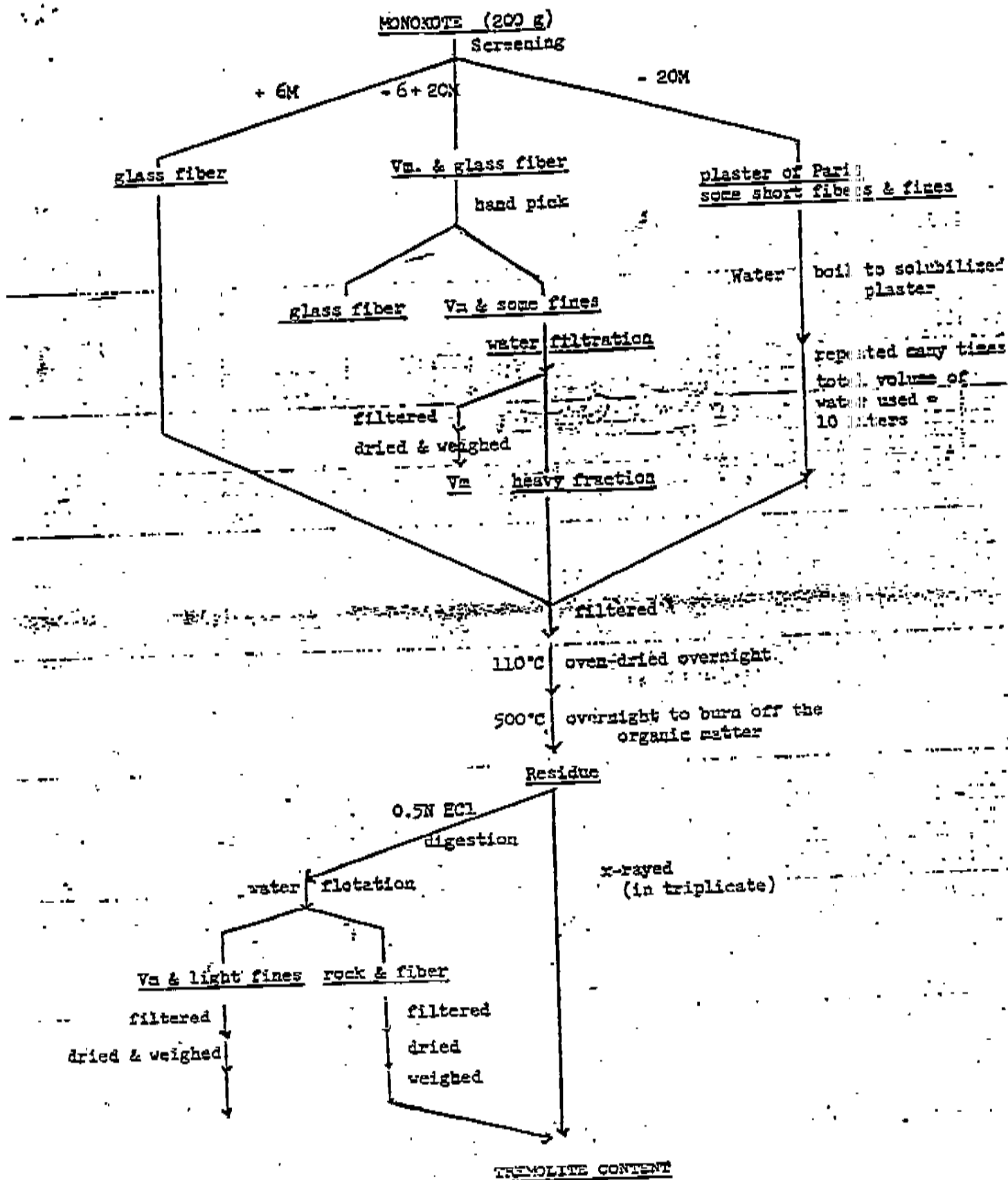


3. Tremolite Determinations in Metro Mix



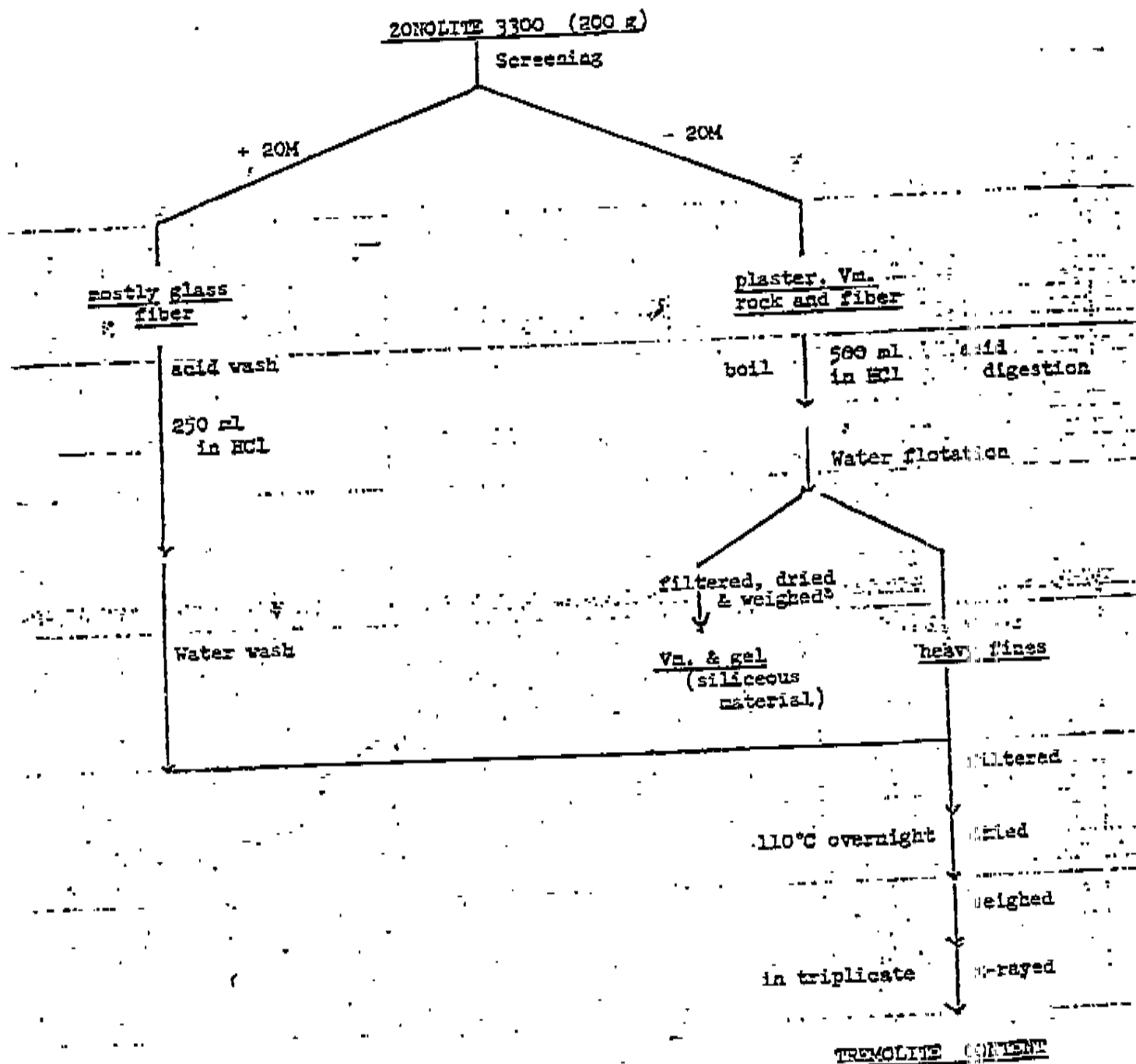
Julie C. Yang
April 19, 1977

4. TREMOLITE DETERMINATION IN MONOKOTE



Julie C. Yang
April 19, 1977

5. TREMOLITE DETERMINATION IN ZONOLITE 3300



Julie C. Yang
April 19, 1977

EXHIBIT 4

02302546

Construction Products Division

GRACE

DATE: April 7, 1977

TO: E. S. Wood
J. W. Wolter
B. R. Williams
W. R. Hanlon
O. M. Favorito

FROM: R. C. Ericson

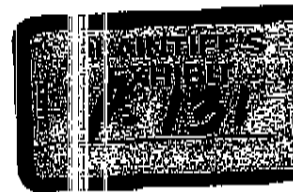
cc: W. F. McCord
B. C. Duecker
R. Locke
F. Eaton

SUBJECT: 2nd Draft Proposal for
MSDS for Vermiculite
Concentrate & Finished Products

Jack Wolter and I met today with Bruce Blessington and Bill Hanlon to develop a "sales viewpoint" on my first draft proposals of April 5th. Essentially we were selecting from among the range of options proposed and editing language to take into account potential adverse impact on the business. The result is a consensus which is attached as (5) "2nd Draft" recommendations. These are to be further reviewed at the April 8th Fiber Committee meeting.

R. C. Ericson
R. C. Ericson

rce/lpj



1. LIBBY TREMOLITE STATEMENT: Contains less than 5% by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

02302817

KEARNEY TREMOLITE STATEMENT: Contains less than 5% by weight of a naturally occurring mixture of amphibole contaminants; hornblende and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* TREMOLITE TABLE BASED ON AVAILABLE CFD TREMOLITE TEST DATA

	LIBBY	KEARNEY
<u>MIXES</u>		
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

100% VERMICULITE PRODUCTS

MASONRY FILL (#4 size)
 " " (#3 size)
 ATTIC FILL (#1 size)
 " " (#2 size)
 " " (#3 size)
 ZONOLITE CONCRETE AGGREGATE
 (#4 size)
 TERRA-LITE GROWER (#2 size)
 " " CONSUMER (#3 size)
 VERKITE (#4 size)
 INDUSTRIAL (#1 size)
 " (#2 size)
 " (#3 size)
 " (#4 size)

LIBBY

XX
 XX
 unknown
 0.1%
 0.1%

KEARNEY

XX
 XX
 not applicable
 not applicable
 1-6%
 1-6%
 not applicable
 1-6%
 below detectable lim
 not applicable
 not applicable
 1-6%
 1-6%

VERMICULITE CONCENTRATE

Size #1
 Size #2
 Size #3
 Size #4
 4G
 Size #5

LIBBY

1.2
 2.5
 XX
 XX
 XX
 XX

KEARNEY

not applicable
 not applicable
 1-6%
 1-10%
 20%
 20%

** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use that approach we would have to generate quantitative lab data by means of linear traverse.

XX - to be determined

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

- 1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
- 4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.
- 5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" (less than 0.5% by weight) fraction. Normal industrial dust control practices should be followed.

RECOMMENDED FIBER STATEMENTS

	<u>LIBBY</u>	<u>KEARNEY</u>
<u>MIXES</u>		
MONOKOTE	1*	1
ZONOLITE 3300	1*	1
REDI-EARTH GROWER	1	1
METRO-MIX GROWER	1	1
<u>100% VERMICULITE PRODUCTS</u>		
MASONRY FILL (#4 size)	1	1
" (#3 size)	1	1
ATTIC FILL (#1 size)	Consumer product (MSDS) not appropriate	1
" (#2 size)		not applicable
" (#3 size)		1
ZONOLITE CONCRETE AGGREGATE (#4 size)		1
TERRA-LITE GROWER (#2 size)	1	1
TERRA-LITE CONSUMER (#3 size)	1	below detectable li
VERXITE	not applicable	MSDS for industrial and uses
INDUSTRIAL (#1 size)	must be specifically tailored for the particular end use practice & must be developed on the basis of customer input 5 (modified) 5 (modified)	
" (#2 size)		
" (#3 size)		
" (#4 size)		
BULK AGRICULTURAL VERM. #4		
<u>VERMICULITE CONCENTRATE</u>	<u>LIBBY</u>	<u>KEARNEY</u>
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4G	4	5
Size #5	—	5

The information contained herein is based on knowledge believed to be reliable but W. R. GRACE & CO. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR ADEQUACY THEREOF. Nothing herein excuses the recipient hereof from such duties as shall be imposed by the Occupational Safety and Health Act of 1970 and regulations issued pursuant thereto.

- * Blessington feels that these two products need further discussion & clarification.

DATE:

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

J. W. Miller

H. R. Williams

W. H. Mallon

O. H. Favorite

SECTION 1

SECTION I		EMERGENCY TELEPHONE NO.
MANUFACTURER'S NAME		617-876-1400 x 457
W. R. Grace & Co. - Construction Products Division		Quality Assurance Manager
ADDRESS (Number, Street, City, State, and ZIP Code)		
62 Whittemore Avenue, Cambridge, MA 02140		
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS	
VERMICULITE CONCENTRATE (Non-expanded) #1 & #2	Vermiculite Concentrate Libby Mine	
CHEMICAL FAMILY	FORMULA	
Magnesium Aluminosilicate Mineral	(Mg,Ca,K)-(Al,Fe,Hg)-(Si,Al) ₄ (O) ₁₀ (OH) ₂ ·H ₂ O	

SECTION II - HAZARDOUS INGREDIENTS

Contains less than 1 % by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

• #1: 1.2 #2: 2.5

The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.

SECTION III - PHYSICAL DATA

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT. VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____ =1)	NA
SOLUBILITY IN WATER	Slight, in any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark gray		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

SECTION IV - FIRE AND EXPLOSION HAZARD DATA		NOT APPLICABLE	
FLASH POINT (Method used)		FLAMMABLE LIMITS	Exp. Limit
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

at the time this
information was given

Form OSHA-20
Rev. May 72

PAGE (1)

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SECTION V - HEALTH HAZARD DATA

0024329

THRESHOLD LIMIT VALUE

Airborne asbestos fiber 2f/cc T.W.A. - ceiling 10f/cc at one time

Dust respirable fraction 5 mgm/m³ Total dust 15 mgm/m³

02361120

EMERGENCY AND FIRST AID PROCEDURES

NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATIBILITY (Materials to Avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
 Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A, Paragraph (h) (2) Waste Disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
 See OSHA standard 1910.1001

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

E. S. Good

DATE:

MATERIAL SAFETY DATA SHEET

J. W. Helter

B. R. Williams

W. R. Hanlon

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

O. M. Faverite

SECTION I

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittamore Ave., Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS VERMICULITE CONCENTRATE	#3 & #4 AC	TRADE NAME AND SYNONYMS Vermiculite Concentrate - Kearney Mine
CHEMICAL FAMILY Magnesium Aluminosilicate Mineral	FORMULA (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al) ₄ (O) ₁₀ (OH) ₂ · ₂ O	

SECTION II - HAZARDOUS INGREDIENTS

The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" (~~less than 1% by weight~~) fraction. Normal industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (M ₄₀ °C)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (%)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark gray		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LFL	UFL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 72

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SECTION V - HEALTH HAZARD DATA

02302632

THRESHOLD LIMIT VALUE
Dust respirable fraction $5\text{mg}/\text{M}^3$. Total dust $15\text{mg}/\text{M}^3$.

0524331

EMERGENCY AND FIRST AID PROCEDURES

NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

CONDITIONS TO AVOID

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne dust within the TLV limits of Section V above.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132; 3M #8710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

DATE: _____

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

E. B. Wood 062

J. H. Walter

B. R. Williams

W. R. Hanlon

O. B. Favorite

MATERIAL SAFETY DATA SHEETRequired under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457.
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittamore Avenue, Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS NOT APPLICABLE	TRADE NAME AND SYNONYMS REDI-EARTH GROWER	
CHEMICAL FAMILY Peat Moss/Vermiculite Mixture	FORMULA NOT APPLICABLE	

SECTION II - HAZARDOUS INGREDIENTS

02302823

Expected end use procedures in the grower industry may create dusty conditions.
Airborne fiber levels will not exceed OSHA standards in the intended end use.

With
OSHA
signature

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT. VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (— = 1)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10
APPEARANCE AND ODOR Slightly moist brown colored free-flowing material			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LM	UL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 72

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THRESHOLD LIMIT VALUE
Nuisance dust TLV = 10mg/H³; 5mg/H³ respirable

02302434

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATABILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

NOT APPLICABLE

RESPIRATORY PROTECTION (Specify type)

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	
PROTECTIVE GLOVES		EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

GRACE

DATE: April 5, 1977

TO: E. S. Wood
J. W. Wolter
B. R. Williams
W. R. Harlow
O. M. Zavorito

FROM: R. C. Ericson

SUBJECT: MSDS for Vermiculite
Concentrate & Finished Products

cc: W. F. McCord
H. C. Dugger
R. Locke
P. Eaton

With more data now available, I have drafted some proposed language for Material Safety Data Sheets. My view is that we should have an MSDS for each product in the line because this permits us to make more informative and precise statements.

The most difficult section to complete is Section II - HAZARDOUS INGREDIENTS. This will include (1) a tremolite statement and (2) an asbestos fibers statement. I am attaching proposals for a standard pattern to follow in this section with (17) distinct finished product classifications. Also attached are (3) examples of complete MSDS for Libby concentrate, Kearney concentrate, and Redi-Earth (an example of a mixed product).

I would expect that a group discussion of these proposals could permit us to develop a consensus draft so that we can respond to numerous pending requests. As a related postscript, I would like to offer my version of a "safety" statement: "We believe our product has an (1) acceptable or (2) negligible or (3) almost non-existent hazard at any foreseeable exposure levels in its intended end use."

R. C. Ericson
R. C. Ericson

rcs/lpj
Attachments

1. **LIBBY TREMOLITE STATEMENT:** Contains less than 1% of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8-hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

KEARNEY TREMOLITE STATEMENT: Contains less than 1% of a naturally occurring mixture of amphibole contaminants; Hornblende and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can fibrillate by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8-hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* TREMOLITE TABLE BASED ON AVAILABLE CPD TREMOLITE TEST DATA

	LIBBY	KEARNEY
MIXES		
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

100% VERMICULITE PRODUCTS	LIBBY	KEARNEY
MASONRY FILL (#4 size)	XX	XX
" " (#3 size)	XX	XX
ATTIC FILL (#1 size)	unknown	not applicable
" " (#2 size)	0.1%	not applicable
" " (#3 size)	0.1%	1-6%
ZONOLITE CONCRETE AGGREGATE (#4 size)	0.5%	1-6%
TERRA-LITE GROWER (#2 size)	0.1%	not applicable
" " CONSUMER (#3 size)	0.1%	1-6%
VERKITE (#4 size)	not applicable	below detectable limit
INDUSTRIAL (#1 size)	XX	not applicable
" (#2 size)	0.1%	not applicable
" (#3 size)	0.1%	1-6%
" (#4 size)	0.5%	1-6%

VERMICULITE CONCENTRATE	LIBBY	KEARNEY
Size #1	1.2	not applicable
Size #2	2.5	not applicable
Size #3	XX	1-6%
Size #4	XX	1-10%
4G	XX	XX
Size #5	XX	XX

- ** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use this approach we would have to generate quantitative lab data by means of linear traverse.

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

- 1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
- 3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
- 4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection. See W. R. Grace & Co. bulletin # _____ for recommended practices.
- 5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

POSSIBLE FIBER STATEMENTS

<u>MIXES</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MONOKOTE	1	1; 2
ZONOLITE 3300	1	1; 2
REDI-EARTH	1; 3	1; 2; 3
METRO-MIX	1; 3	1; 2; 3
<u>100% VERMICULITE PRODUCTS</u>	<u>LIBBY</u>	<u>KEARNEY</u>
MASONRY FILL (#4 size)	3	1; 2
" " (#3 size)	3	1; 2
ATTIC FILL (#1 size)	unknown	
" " (#2 size)	3	
" " (#3 size)	unknown	1; 2
ZONOLITE CONCRETE AGGREGATE (#4 size)	1	1; 2
TERRA-LITE GROWER (#2 size)	1; 3	
TERRA-LITE CONSUMER (#3 size)	1	1; 2
VERXITE INDUSTRIAL (#1 size)	3	
" " (#2 size)	3	
" " (#3 size)	3	1; 2
" " (#4 size)	3	1; 2
<u>VERMICULITE CONCENTRATE</u>	<u>LIBBY</u>	<u>KEARNEY</u>
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4G	4	5
Size #5	---	5

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DATE: _____

MATERIAL SAFETY DATA SHEET

J. W. Wolter

B. R. Williams

W. R. Hanson

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

O. H. Favorito

SECTION I

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code) 67 Whittemore Avenue, Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS VERMICULITE CONCENTRATE (Non-expanded) #1 & #2	TRADE NAME AND SYNONYMS Vermiculite Concentrate - Libby Mine	
CHEMICAL FAMILY Magnesium Aluminosilicate Mineral	FORMULA (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al) ₄ (O) ₁₀ (OH) ₂ ·H ₂ O	

SECTION II - HAZARDOUS INGREDIENTS

1. **TREMOLITE STATEMENT:** Contains less than * % of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* #1: 1.2 #2: 2.5

The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosures, exhaust ventilation and dust collection. See W. R. Grace & Co. bulletin # _____ for recommended practices.

02302825

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method Used)	FLAMMABLE LIMITS	Lim	Upr
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

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Form OSHA-20
Rev. May 72

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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	0624338
Airborne asbestos fiber 2f/cc T.W.A. - ceiling 10f/cc at one time	
Dust respirable fraction 5 mgm/M ³ Total dust 15 mgm/M ³	02302500
EMERGENCY AND FIRST AID PROCEDURES	NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE

STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE	
INCOMPATIBILITY (Materials to avoid)		
HAZARDOUS DECOMPOSITION PRODUCTS		
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.
WASTE DISPOSAL METHOD
Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A, Paragraph (h) (2) Waste Disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
See OSHA standard 1910.1001
OTHER PRECAUTIONS

DATE: _____

MATERIAL SAFETY DATA SHEET

J. W. Webster

B. R. Williams

W. R. Hanlon

Required under USOL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

O. M. Favorito

SECTION I

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 487
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittemore Ave., Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS VERMICULITE CONCENTRATE	#3 & #4	TRADE NAME AND SYNONYMS Vermiculite Concentrate - Kearney Mine
CHEMICAL FAMILY Magnesium Aluminosilicate Mineral	FORMULA (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)4(O)10(OH)2	

SECTION II - HAZARDOUS INGREDIENTS

KEARNEY TREMOLITE STATEMENT: Contains less than 1% of a naturally occurring mixture of amphibole contaminants; Hornblend and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

00302530

* #3: 1-6%; #4: 1-10%

The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominant platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (20°/20°)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (1 lb./hr.)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	Exp	Det
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

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THRESHOLD LIMIT VALUE
DUST Respirable fraction mgm/M^3 Total dust $15\text{mgm}/\text{M}^3$

02301831

0624340

EMERGENCY AND FIRST AID PROCEDURES

HA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.
WASTE DISPOSAL METHOD
Use disposal techniques which control airborne dust within the TLV limits of Section V above.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132; 3M #8710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
OTHER PRECAUTIONS

DATE: _____

MATERIAL SAFETY DATA SHEET

J. W. Holter

B. R. Williams

W. R. Cannon

O. M. Favorito

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME W. R. Grace & Co. - Construction Products Division		EMERGENCY TELEPHONE NO. 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittemore Avenue, Cambridge, MA 02140		Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS NOT APPLICABLE		TRADE NAME AND SYNONYMS REDI-EARTH GROWER
CHEMICAL FAMILY Peat Moss/Vermiculite Mixture	FORMULA NOT APPLICABLE	

SECTION II - HAZARDOUS INGREDIENTS

02102532

- Contains less than 2.0% of a naturally occurring contaminant tremolite. The morphology of the tremolite content is predominantly platy (non-fibrous). Less than 5% of the contaminant (0.1%) is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers.
- Airborne fiber levels will not exceed OSHA standards in the intended end use.
- Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.

NOTE: This section could include any of the following combinations:
1 & 2 or 1 & 3 (Kearney vermiculite only)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (M ₂₀ /4)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (#3)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10
APPEARANCE AND ODOR Slightly moist brown colored free-flowing material			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LSL	USL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1)

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THRESHOLD LIMIT VALUE
Nuisance dust TLV = $10\text{mg}/\text{m}^3$; $5\text{mg}/\text{m}^3$ respirable

0624342

EMERGENCY AND FIRST AID PROCEDURES

NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		
INCOMPATIBILITY (materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

NOT APPLICABLE

RESPIRATORY PROTECTION (Specify type)

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	
PROTECTIVE GLOVES		EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

CCM

7/10/93
del orally at the
meeting 4-4-93R. C. Seaman
CC - WoodRe: MSDS for Vanillito
Pomelato + 2 small bottles

I have reviewed the Draft Report
for MSDS for pomelato concentrate
and finished products and have the
following comments

(a) Reference to Regulation 1910.93
~~the~~ should be deleted. The
word "The" designation given to the
OSHA criteria should appear at
the beginning. The designation
proper designation is to 1910.100
and the reference should be made
throughout.

~~I indicated the~~
~~that~~ ~~the~~ ~~present~~
~~the~~

(b) I indicated that the person
for ~~indicating~~ ~~notify~~ to indicate
the present ~~the~~ by weight
of volatile content is to give the
receipt ~~the~~ ~~the~~
~~the~~ the indication that
he is not giving a product containing
commercial solvents and that the
~~commercial solvents~~ ~~the~~ ~~the~~

the volume that 19/1/001 is

(C) I note that ~~not mentioned in~~ ~~made~~
in the proposed MSDS data sheet
for Heavy ore. ~~the~~ ~~data~~
~~original data~~ ~~sample~~ ~~the~~
~~the~~ ~~standard~~ ~~should be~~ ~~made~~
made to the standard ~~sample~~
* since from time to time packets of
of ~~a~~ ~~Alloy~~ ore are received
in a South Carolina which shows
a ~~fibrous~~ ~~and~~ ~~would~~ ~~substantive~~
content. I note your statement
that "the dust has a negligible
negligible "substantive fiber" (less than
0.5% by weight) fraction."

~~is a~~ ~~confusing~~ ~~As indicated~~
above a 0.5% ~~weight~~ ~~substantive~~
fiber content ~~constitutes~~ ~~significant~~
~~may~~ ~~now~~ ~~become~~ ~~appreciable~~
fiber are light ~~and~~ ~~fibrous~~
~~may~~ ~~say~~ ~~that~~ ~~the~~ ~~substantive~~ ~~fiber~~
fibrous ~~substantive~~ ~~material~~
content of the Heavy ore is
less than 0.5% by weight
it would be more accurate to

(if I understand your data correctly)
the fact that ~~the~~ ~~substantive~~ ~~fiber~~ ~~content~~ ~~is~~ ~~high~~ ~~as~~ ~~10%~~
content of ~~substantive~~ ~~fiber~~ ~~content~~ ~~is~~ ~~high~~ ~~as~~ ~~10%~~
of ~~substantive~~ ~~fiber~~ ~~content~~ ~~is~~ ~~high~~ ~~as~~ ~~10%~~
of ~~substantive~~ ~~fiber~~ ~~content~~ ~~is~~ ~~high~~ ~~as~~ ~~10%~~

As indicated above I ~~do not~~
~~see~~ suggest do not reveal the
existence of a student relative to
present content of transcript
reviewed.

(d) I suggest that H.A. School
be added to CPD's MDS
review process.

O. M. F.